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- (56)
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- (57) **ABSTRACT**

- A turbine airfoil with a film cooling hole having a bell mouth shaped opening that has expansion in both the side walls and the downstream wall of from 15 to 25 degrees. The film cooling hole includes an expansion section formed with two long ribs and one short rib to form three inlets of equal cross sectional areas so that the flows into the three passages are the same. The short rib forms two middle passages to combine with two outer passages to form four exit passages for the film hole. The two side walls are curved outward in the stream-wise oriented film hole and have an expansion of from 0 to 5 degrees in the compound angled film hole.

- 16 Claims, 5 Drawing Sheets**

See application file for complete search history.

